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Mood and fluency: The case of pronunciation ease, liking and trust

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Abstract

We explored the impact of mood on the judgemental consequences of word pronounceability in six Experiments (1 preregistered, total $N = 1183$). Positive and negative mood was induced via video clips (all but Experiment 4) and subliminal affective primes (Experiment 4). Additionally, participants were presented with easy- and difficult-to-pronounce letter strings. These were framed as target words to be judged for liking (Experiments 1–2), as names of eBay sellers to be judged for trustworthiness (Experiments 3–5), or as either seller names or passwords to provoke opposing interpretations of pronunciation fluency (Experiment 6). While pronounceability showed a robust effect across experiments, mood did not modulate the judgemental use of (Experiments 1–4), the correction for (Experiment 5) and the interpretation (Experiment 6) of word pronounceability. In conclusion, the judgemental effects of pronounceability persist despite the presence of more objective and task-pertinent cues, resist judgemental correction and remain unaffected by affective states.

KEYWORDS
affect, fluency, mood, pronounceability, trust

1 | INTRODUCTION

In recent years, the psychological consequences of word pronounceability, referring to the subjectively experienced ease of pronunciation, have received increasing attention in social and cognitive psychology (e.g. Du et al., 2021; Laham et al., 2012; Lee et al., 2015; Newman et al., 2014; Topolinski et al., 2016; Zürn & Topolinski, 2017). Similarly, various effects of pronounceability have been documented in the domain of applied psychology, consumer psychology, branding and even financial economics.

For instance, online sellers with easy-to-pronounce names are perceived as more trustworthy than those with difficult-to-pronounce names (Silva et al., 2017a). Easy- compared to difficult-to-pronounce names of food additives lead to lower harmfulness ratings (Song & Schwarz, 2009; see Bahník & Vranka, 2017, for item effects in this paradigm). Drugs with easy- compared to difficult-to-pronounce names trigger higher willingness to buy and are perceived as being less hazardous (Dohle & Siegrist, 2014), even resulting in elevated drug dosages (Dohle & Montoya, 2017). Products with easy-to-pronounce brand names are rated as being more controllable (Leonhardt & Pechmann, 2021). Easy-to-pronounce water brand names lead to higher perceived purity and taste (Cho et al., 2019), and firms with easy-to-pronounce names attract more investors and have a higher value (Green & Jame, 2013). The effects of word pronounceability have even been shown to extend to actual stock market performance, as shares with easier-to-pronounce ticker codes outperform shares with harder-to-pronounce codes in price development (Alter & Oppenheimer, 2006). Thus, although pronunciation ease is a superficial, most often irrelevant feature, it has a pervasive influence on judgements.

Despite the abundance of pronounceability effects in various judgemental domains, little is known about the mechanisms driving these effects and their interaction with other psychological variables. With respect to the judgement formation process that underlies pronounceability effects, there are probably at least two distinct stages: in the initial stage, automatic phonological encoding processes[1] unfold during reading, generating the subtle feeling of pronunciation ease (cf., Gerten & Topolinski, 2020). In the subsequent stage, individuals use this feeling of ease as a cue to inform their judgements (e.g. Dohle & Siegrist, 2014; Leonhardt & Pechmann, 2021; Newman et al., 2014; Song & Schwarz, 2009; Topolinski et al., 2016).

The emergence of that feeling has been tied to the more general notion of *processing fluency* (e.g. Alter & Oppenheimer, 2009; Hertwig et al., 2008), which refers to the subjective experience of ease with which information is cognitively processed (Reber et al., 2004). Processing fluency can arise from a variety of factors, including a positive mood (e.g. Bless et al., 1990; Bolte et al., 2003), the clarity of the font used to present a statement (e.g. Reber & Schwarz, 1999; Unkelbach et al., 2007), or the internal consistency of the stimuli provided (e.g. Topolinski & Strack, 2009b). The judgemental consequences of processing fluency, however, are remarkably similar (for a review, see Alter & Oppenheimer, 2009): fluently processed information is perceived as more positive (e.g. good, true, familiar) than information that is processed with difficulty. In this regard, manipulations of pronounceability have often been conceptualised as an instantiation of processing fluency and were introduced as such into the literature (Alter & Oppenheimer, 2006; Song & Schwarz, 2009).

Although the subjective experience of fluency generally evokes positive evaluations (e.g. Alter & Oppenheimer et al., 2006; Cho et al., 2019; Leonhardt & Pechmann, 2021; Silva et al., 2017b; Silva & Unkelbach, 2021), it can be flexibly interpreted depending on the context. This can result in different concept-specific and even opposing effects when the evaluative dimension is flipped (e.g. Briñol et al., 2006; Silva et al., 2016; Unkelbach et al., 2006, 2007; Vogel et al., 2020). For instance, in the seminal study by Song and Schwarz (2009), participants rated amusement park rides with difficult-to-pronounce names as being more adventurous and exciting (both positive judgemental dimensions), but also riskier (a negative dimension) than rides with easy-to-pronounce names. Likewise, Cho (2015) found that drugs with difficult- compared to easy-to-pronounce names were perceived as more technologically advanced (a positive judgemental dimension), but also as bearing higher risks of side effects (a negative dimension). Accordingly, people's interpretation of fluency is influenced by the lay theories they hold about what fluent processing signifies in a given context (for a recent review, see Schwarz et al., 2021).

Interestingly, individuals do not seem to be able to correct for the judgemental impact of pronounceability, even when explicitly briefed about the variations in pronounceability and asked to discount them from their judgements. For example, briefed participants in Silva et al.'s (2017a) study were just as affected by pronounceability as naïve participants when assessing the trustworthiness of eBay sellers. This finding suggests that once the feeling of pronunciation ease is generated and felt, it is inevitably used as a cue in the judgement at hand.

1.1 | The impact of mood on fluency-related judgements

Although our knowledge of the factors influencing pronounceability effects is currently limited, there is evidence pointing towards the potential influence of mood on the judgemental use of pronounceability. Generally, mood has a pervasive impact on cognitive processing (for reviews, see Ashby et al., 1999; Bless et al., 2000; Bolte & Goschke, 2010; Schwarz et al., 2011). Mood and even brief affective states not only alter cognitive processes themselves, but also influence how strongly individuals rely on superficial stimulus features such as processing fluency (e.g. Baumann & Kuhl, 2002; Bolte & Goschke, 2010; Dreisbach, 2006; Isen & Means, 1983; Isen et al., 1987; Petty & Cacioppo, 1986; Topolinski & Deutsch, 2012).

More specifically, the theory of *cognitive tuning* (Schwarz et al., 2002; see also assimilation vs. accommodation, Bless & Fiedler, 2006) holds that in a positive mood, cognitive processing of information tends to be shallow, non-systematic and intuitive (e.g. Baumann & Kuhl, 2002, 2003; Bless et al., 1996; Bohner et al., 1994; Bolte & Goschke, 2010; Bolte et al., 2003; Isen & Means, 1983; Park & Banaji, 2000). In contrast, cognitive tuning suggests that a negative mood fosters systematic and thorough processing of information (e.g. Bless et al., 1990; Bohner et al., 1992; de Vries et al., 2008; Sinclair & Mark, 1995; Storbeck & Clore, 2005).

If judgements based on fluency as a superficial stimulus feature are conceptualised as intuitive and non-systematic, cognitive tuning would predict that the effects of fluency are stronger under positive than under negative mood. In other words, if positive mood fosters a more shallow and intuitive processing of information (as cognitive tuning predicts), people should rely more heavily on the easily accessible but task-irrelevant cue of processing fluency.

Indeed, several studies have found that the judgemental effects of fluency are more pronounced in positive than in negative moods. For instance, this has been demonstrated for the case of retrieval fluency (i.e. the ease with which content can be accessed from memory) in the classical paper by Ruder and Bless (2003). They found that participants in a positive mood relied more strongly on the ease of retrieving arguments when forming attitudes than participants in a negative mood (which is referred to as the *ease of retrieval heuristic*, see Schwarz et al., 1991b). Similar results were found for the case of the truth effect: Participants in positive and neutral mood judged statements in an easy-to-read (i.e. fluent) font as more likely to be true than those in a difficult-to-read (i.e. disfluent) font. Consistent with cognitive tuning accounts, this fluency-truth effect was not found for participants in negative mood (Koch & Forgas, 2012). Furthermore, it has been shown

[1] The cognitive process by which individuals organise and represent the permissible sound sequences (phonotactic rules) within a particular language (Ulbrich et al., 2016).

that the intuitive discrimination between semantically coherent and incoherent material (which is largely based on processing fluency; Topolinski & Strack, 2009a, 2009b, 2009c; Topolinski et al., 2009; see Maldei et al., 2020, for other determinants), is enhanced in positive compared to negative mood (Baumann & Kuhl, 2002; Sweklej et al., 2014, 2015).

Although all of these studies have found that fluency effects are more pronounced in positive than in negative moods, other studies, however, have found the opposite effect. Accordingly, several studies have found an attenuation of fluency effects in positive mood states. For instance, de Vries et al. (2010) found that the usual preference for prototypes, which is also based on processing fluency (Vogel et al., 2021; Winkielman et al., 2006), vanishes under positive compared to negative mood. In a similar vein, Freitas et al. (2005) found that participants preferred relatively fluent over disfluent stimuli in a prevention focus (i.e. a negative motivational state) but not in a promotion focus (i.e. a positive motivational state).

Finally, the mere exposure effect (Zajonc et al., 1968), the most famous fluency-based phenomenon in modern psychology (e.g. Reber et al., 1998), has been shown to be unaffected by mood. Accordingly, Molet et al. (2021) found no effect of mood on participants' preference for (partially repeated) foreign letters. Consistent with this finding, Schellenberg et al. (2008) re-played happy and sad pieces of music at varying frequencies and found no difference in the resulting mere exposure effects between happy and sad music.

In summary, previous investigations exploring the relationship between mood and fluency have yielded mixed evidence. Given that these studies have all employed different fluency manipulations, target stimuli, dependent measures and global judgemental contexts, it surely is premature to extrapolate a systematic pattern of the relation between mood and fluency. Tentatively, however, we can note that the studies that found enhanced fluency effect in positive mood (forming an attitude on an abstract matter, Ruder & Bless, 2003; judging the truth of statements, Koch & Forgas, 2012; judging the semantic coherence of word triples, e.g. Baumann & Kuhl, 2002; Topolinski & Strack, 2009b) used verbal stimuli to be judged according to rather abstract dimensions. In contrast, the studies that found attenuated fluency effects in positive mood (liking of dot patterns, de Vries et al., 2010; liking of images of line drawings depicting everyday objects, Freitas et al., 2005), or no mood effects at all (liking of foreign letters, Molet et al., 2021; liking of music pieces, Schellenberg et al., 2008) used non-verbal stimuli and direct liking judgements of the stimuli themselves.

Applying this speculative systematic pattern to the pronounceability effect makes it an interesting case because it uses verbal materials (nonsense words or names that do not bear semantic meaning) and usually employs direct liking ratings of these stimuli.

2 | AIM OF THE PRESENT WORK

In the present project, we systematically explored the impact of mood on the judgemental use of pronounceability, as this instantiation of fluency has sparked a variety of research across social, cognitive and applied psychology in recent years (see introduction). Our research serves two conceptual purposes:

> First, regarding pronounceability sui generis, our objective is to systematically investigate its interaction with affective states in different judgmental contexts. Given our limited understanding of the mechanism behind this phenomenon, this may contribute to a better understanding of how pronunciation fluency influences judgment formation.
>
> Second, considering the mixed evidence on the mood–fluency relationship (see previous section), we aim to gain a more nuanced understanding of how mood influences the experience of fluency. Thus, our investigation into the relationship between mood and pronounceability serves as a case study to explore the broader link between mood and fluency.

Given what has been investigated so far, the following judgemental processing cases in pronounceability effects can be hypothesised (systematised in Figure 1).

Direct use: During reading, automatic and fast-running phonological encoding takes place (cf., Gerten & Topolinski, 2020), triggering a feeling of ease. This feeling is used as a judgemental cue when no further judgement-related information is available (e.g. Dohle & Siegrist, 2014; Leonhardt & Pechmann, 2021; Newman et al., 2014; Song & Schwarz, 2009; Topolinski et al., 2016). Experiments 1–2 target this basic link (Figure 1, case a), by testing whether mood modulates pronounceability effects in the absence of any competitive information. Such a modulation could theoretically take place either at the level of phonological encoding or the use of the emerging feeling in the eventual judgement. However, given that we did not find any hints in the psycholinguistic literature that mood modulates these very basic and automatic reading processes, we would locate such a modulation at the judgemental level.

Competitive use: The feeling of pronunciation ease is also used to inform judgements when other, more objective and task-pertinent cues are available (Silva et al., 2017a). The literature on cognitive tuning predicts that negative mood induces more systematic, thorough processing and thus a higher reliance on systematic, diagnostic information for the judgement at hand (e.g. Bohner et al., 1992; Chaiken & Ledgerwood, 2012; Forgas et al., 2005). Thus, according to cognitive tuning accounts, mood should modulate the degree to which superficial and objective task-related cues are used in judgement formation. Accordingly, the impact of pronounceability should be reduced when more objective judgemental cues are available, and, crucially, particularly so in negative compared to positive moods. This will be tested in Experiment 3 (Figure 1, case b). Experiment 4 will serve as a robustness check, generalising our findings to a different manipulation of the affective state (subliminal affective priming, within-subjects).

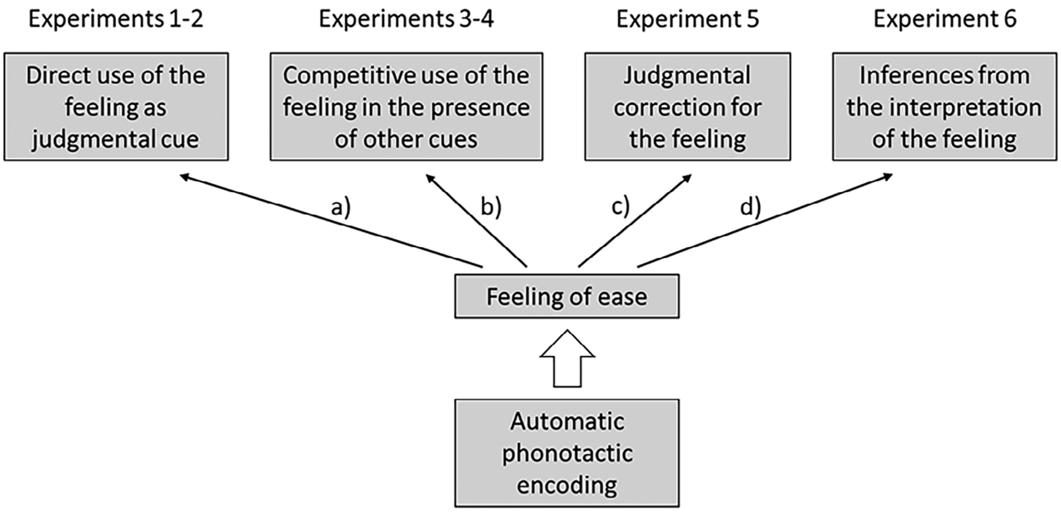

FIGURE 1 Overview of the specific fluency-use cases that each of the present experiments targets: (a) Direct use, (b)competitive use, (c) correction and (d) inferences from the feeling of pronunciation ease.

Correction: Individuals are generally able to correct for the impact of superficial stimulus features when they are explicitly informed about the nature of the influence and are instructed to discount it from their judgement (e.g. Clore et al., 1992; Strack & Hannover, 1996; Wilson & Brekke, 1994). Consistent with cognitive tuning accounts, mood has been shown to modulate the ability for judgemental correction. Accordingly, judgemental correction appears to be more effective when individuals are in a negative compared to a positive mood (e.g. Bless et al., 1990; Bohner et al., 1992; Lambert et al., 1997; Ottati & Isbell, 1996; Storbeck & Clore, 2005). Although participants could not correct for pronounceability in Silva et al. 's (2017a) study, negative mood might facilitate to correct for this superficial stimulus feature, which is tested in Experiment 5 (Figure 1, case c).

Inferences from the feeling of ease: Although increased pronunciation fluency typically results in more positive evaluations, previous research also indicates that the feeling of ease can be flexibly interpreted depending on the judgemental context. Accordingly, low fluency due to difficult pronunciation may be interpreted as a cue to excitement and technological advancement, but also risk (e.g. Cho et al., 2015; Song & Schwarz, 2009). These dissociations are due to participants' lay theories of what the evoked feeling of ease means in a given context. Given that such theory-driven inferences from experienced fluency require cognitive capacity (e.g. Schwarz et al., 2021; Zhang & Hanks, 2017), cognitive tuning theory predicts that mood should affect this process. Specifically, theory-driven inferences should be pronounced under negative compared to positive mood, because negative mood leads to more systematic processing and thorough elaboration (e.g. Forgas et al., 2013; Schwarz et al., 2000; Schwarz et al., 1991a). Consequently, in Experiment 6, we will investigate the potential influence of mood on the flexible cognitive interpretation of pronunciation ease (Figure 1, case d).

3 | TRANSPARENCY, ETHICS AND SAMPLE SIZE PLANNING

All data, analysis scripts and materials have been made publicly available at the Open Science Framework (OSF) and can be assessed at https://doi.org/10.17605/OSF.IO/QRAKF. All measures, manipulations and data exclusions (if any) are reported. All experiments are in line with the ethical guidelines of the Deutsche Gesellschaft für Psychologie, the American Psychological Association and the Declaration of Helsinki by the World Medical Association. All reported *p*-values correspond to two-sided tests.

Conservatively assuming a small interaction effect $f = 0.1$ (partial $\eta^2 = 0.01$) in a 2×2 within-between interaction (mood × pronounceability), G*Power (Faul et al., 2009) gives $N_{required} = 200$ to achieve 80% power. Although we also realised more complex designs involving additional factors (e.g. reputation), the conceptually relevant interaction always concerns mood (mostly manipulated between-subjects) × pronounceability (always manipulated within-subjects). Thus, all but one of the present experiments collected at least 200 participants (with the only exception being Experiment 4 with $N = 160$, which implemented a full within-subjects design). Because due to technical constraints, a certain portion of participants had to be discarded in each experiment (see the 'sample' sections), we report post-hoc sensitivity analyses for each experiment within the respective 'sample' sections. All of the present samples allowed us to detect a small interaction effect of $f = 0.11$ (partial $\eta^2 = 0.012$).

4 | EXPERIMENT 1: THE BASIC PRONOUNCEABILITY-LIKING EFFECT

Experiment 1 investigated the impact of mood on the basic link between pronounceability and liking in the absence of other judgemental cues (Figure 1, case a). Following the induction of a positive or negative mood, participants reported their liking of relatively easy or difficult-to-pronounce letter strings. If pronounceability effects are susceptible to cognitive tuning, we should observe enhanced pronounceability effects in positive compared to negative mood.

4.1 | Method

4.1.1 | Sample

The data were collected online using Prolific Academic (www.prolific.co). The data collection yielded $N = 210$ participants fluent in German (Age: $M = 26$, $SD = 9$, 36.7% female). Participants received £1.50 compensation (mean completion time 17 min). We applied a data cleaning procedure primarily based on attention checks to ensure thorough completion of the experiment. Specifically, (1) participants had to successfully complete a soundcheck at the beginning of the experiment, (2) watch the entire video, (3) proceed with the experiment within 30 s after the video had ended and (4) indicate that they had watched the video attentively at the end of the experiment. Based on these criteria, $N = 50$ participants were excluded from the analysis (sad condition $N = 30$, happy condition $N = 20$). The final data set comprised $N = 160$ participants. Importantly, there was a comparable number of participants in both groups (sad condition $N = 84$, happy condition $N = 76$). According to sensitivity analyses run in G*Power (Faul et al., 2009), this sample allows us to detect a minimum effect size of $f = 0.12$ (corresponding to partial $\eta^2 = 0.02$) with 80% power ($\alpha = .05$, two-tailed, repeated measures, within-between interaction).

4.1.2 | Materials and procedure

After a brief soundcheck, participants completed the PANAS scale (Watson et al., 1988) to provide a baseline measurement of positive affect (PA) and negative affect (NA) at the beginning of the experiment (T0). Subsequently, participants were randomly assigned to watch either a humorous video (cats and toddlers) or a sad video (man grieving the euthanisation of his cat) to induce a happy or sad mood, respectively (duration of both videos approx. 2 min; the videos can be accessed at https://doi.org/10.17605/OSF.IO/QRAKF). After participants had watched the video, the PANAS was assessed again (T1) to confirm that the mood induction had worked as intended. Following this, participants proceeded to the main task of the experiment, where they were instructed to evaluate how much they liked different letter strings (half of which easy-; half of which difficult-to-pronounce), each presented on a separate page. The stimulus pool from Topolinski et al. (2016) was employed. From this pool, 20 easy-to-pronounce and 20 difficult-to-pronounce letter strings were randomly sampled and presented re-randomised anew for each participant. An 8-point-Likert scale from 1 = *not at all* to 8 = *very much* was applied for the liking task. Afterwards, the PANAS was administered a third time (T2) to monitor the change in mood throughout the main task. At the end of the experiment, the participants answered some additional questions.

4.2 | Results

4.2.1 | Manipulation check

We used the difference between the PANAS scales PA and NA to confirm that the mood induction had worked as intended. While there were no differences in affect at T0 between the positive ($M = 13.09$, $SD = 10.67$) and negative ($M = 11.65$, $SD = 9.28$) mood condition, $t(158) = 0.91$, $p = .364$, $d = 0.14$, the positive ($M = 16.72$, $SD = 11.15$) and negative ($M = 1.58$, $SD = 8.25$) mood condition strongly differed in affect at T1, $t(158) = 9.68$, $p < .001$, $d = 1.55$. This difference between the positive ($M = 13.06$, $SD = 10.25$) and the negative ($M = 6.93$, $SD = 9.43$) mood condition was still highly significant at T2 after the rating task, $t(158) = 3.94$, $p < .001$, $d = 0.62$.[2]

4.2.2 | Liking ratings

A 2 (Mood condition: happy vs. sad mood; between-subjects) × 2 (Pronounceability: high vs. low; within-subjects) ANOVA[3] on the aggregated liking ratings revealed a significant and strong main effect of pronounceability, $F(1, 158) = 209.68$, $p < .001$, partial $\eta^2 = 0.57$, $BF_{10} > 1000$, no main effect of mood, $F(1, 158) = 1.78$, $p = .184$, partial $\eta^2 = 0.01$, $BF_{10} = 0.41$ and no interaction between mood and pronounceability, $F(1, 158) = 0.03$, $p = .855$, partial $\eta^2 = 0.00$, $BF_{10} = 0.17$. Across both mood conditions, easy letter strings ($M = 4.42$, $SE = 0.09$) were liked more than difficult letter-strings ($M = 3.01$, $SE = 0.10$), $t(159) = 14.55$, $p < .001$, $d_z = 1.15$, but there was no modulation of this basic effect by mood.

4.3 | Discussion

In Experiment 1, we replicated the basic effect of pronounceability on attitudes, as demonstrated in prior studies (e.g. Silva et al., 2017a; Song & Schwarz, 2009). However, although the manipulation check validated a successful mood induction, we found no modulation of

[2] Using the separate measures PA and NA showed the same pattern of group differences: While there were no differences in PA ($M_{happy} = 31.43$, $SD_{happy} = 6.76$; $M_{sad} = 31.67$, $SD_{sad} = 5.49$) and NA ($M_{happy} = 18.34$, $SD_{happy} = 8.16$; $M_{sad} = 20.01$, $SD_{sad} = 8.31$) at T0; PA, $t(158) = 0.24$, $p = .811$, $d = 0.04$; NA, $t(158) = 1.28$, $p = .202$, $d = 0.20$; participants in the happy condition reported higher PA ($M_{happy} = 32.16$, $SD_{happy} = 8.12$; $M_{sad} = 24.81$, $SD_{sad} = 6.13$) and lower NA ($M_{happy} = 15.43$, $SD_{happy} = 7.69$; $M_{sad} = 23.23$, $SD_{sad} = 7.96$) than participants in the sad condition at T1; PA, $t(158) = 6.49$, $p < .001$, $d = 1.03$; NA, $t(158) = 6.28$, $p < .001$, $d = 1.00$. After having completed the liking task (T2), participants in the happy condition still reported lower NA ($M_{happy} = 16.58$, $SD_{happy} = 7.57$; $M_{sad} = 20.59$, $SD_{sad} = 8.51$) but did not report higher PA ($M_{happy} = 29.64$, $SD_{happy} = 7.76$; $M_{sad} = 27.52$, $SD_{sad} = 6.62$); PA, $t(158) = 1.86$, $p = .064$, $d = 0.29$; NA, $t(158) = 3.14$, $p = .002$, $d = 0.50$.

[3] We also conducted analogous Bayesian ANOVAs using JASP version 0.16.3.0 (JASP Team, 2020). Here, we report the Bayes Factors comparing the models with a respective effect to the equivalent models stripped of the effect excluding higher order interactions ('Baws Factor'; Mathot, 2017). All JASP files are provided on the OSF.

the pronounceability effect by mood. It is plausible that the repeated mood assessments via the PANAS may have increased participants' awareness of their mood, leading them to correct their judgements for mood-related influences (Schwarz & Clore, 1983). This could potentially blur any impact of mood on the use of pronounceability in judgement formation. Therefore, in our next experiment, we aimed to replicate the given setup while excluding the PANAS assessment.

5 | EXPERIMENT 2: THE BASIC PRONOUNCEABILITY-LIKING EFFECT—REPLICATION

As the efficacy of our mood induction had been established, we proceeded to replicate Experiment 1 while omitting the PANAS scale. This step was taken to eliminate any potential concern that the mood assessment via the PANAS had prompted participants' to correct their judgements for the influence of mood.

5.1 | Method

5.1.1 | Sample

The data were collected via the same online access panel as in Experiment 1. We collected data of $N = 209$ participants fluent in German (Age: $M = 26$, $SD = 8$, 40.2% female). Participants received £1.20 compensation (mean completion time 11 min). We applied the same data cleaning procedure as in Experiment 1. A total of $N = 49$ participants were excluded from the analysis (sad condition $N = 27$, happy condition $N = 22$). The final data set comprised $N = 160$ participants. Here again, there was still a comparable number of participants in both groups (sad condition $N = 78$, happy condition $N = 82$). Using G*Power (Faul et al., 2009), this sample allows us to detect a minimum effect size of $f = 0.11$ (corresponding to partial $\eta^2 = 0.01$) with 80% power ($\alpha = .05$, two-tailed, repeated measures, within-between interaction).

5.1.2 | Materials and procedure

The second experiment followed the same procedure as the first experiment, but the PANAS scale was dropped.

5.2 | Results

A 2 (Mood condition: happy vs. sad mood; between-subjects) × 2 (Pronounceability: easy vs. difficult; within-subjects) ANOVA on the aggregated liking ratings found a main effect of pronounceability, $F(1, 158) = 225.27$, $p < .001$, partial $\eta^2 = 0.59$, $BF_{10} > 1000$ and of mood, $F(1, 158) = 5.90$, $p = .016$, partial $\eta^2 = 0.04$, $BF_{10} = 2.63$, but again no interaction, $F(1, 158) = 0.16$, $p = .689$, partial $\eta^2 = 0.00$, $BF_{10} = 0.18$. Across both mood conditions, easy letter strings ($M = 4.63$, $SE = 0.09$) were liked more than difficult letter strings ($M = 3.23$, $SE = 0.09$), $t(159) = 15.04$, $p < .001$, $d_z = 1.19$, but there was no modulation of the pronounceability effect by mood. The main effect of mood was constituted by the fact that happy participants ($M = 4.11$, $SD = 1.03$) generally reported higher liking for the letter strings than sad participants ($M = 3.74$, $SD = 0.92$), $t(158) = 2.44$, $p = .016$, $d = 0.98$.

5.3 | Discussion

Replicating the findings of Experiment 1, the pronounceability effect was not modulated by experimentally induced mood. In contrast to the previous experiment, we found a main effect of mood on liking, with positive compared to negative mood increasing overall evaluations[4]. This can serve as an indirect validation of our successful mood induction. More importantly, this finding shows the immediate impact of mood on the present judgements via the feeling-as-information link (e.g. Schwarz et al., 2021). Accordingly, participants used not only the pronunciation-induced feeling of ease, but also their (positive or negative) mood state to render their liking judgements. Thus, the influence of mood on participants' evaluations might have indeed been compromised in Experiment 1 due to repeatedly directing participants' attention to their mood (see the classical work by Schwarz & Clore, 1983).

As under the induced mood states, the direct use of pronounceability as a judgemental cue remained unchanged (see Figure 1, case a), the subsequent experiment investigated the interaction between mood and pronounceability effects while enriching the judgemental context of the experiment.

6 | EXPERIMENT 3: PRONOUNCEABILITY IN COMPETITION WITH OBJECTIVE CUES FOR TRUST

According to cognitive tuning accounts, mood should modulate the degree to which superficial or objective task-related cues are used in judgement formation. Thus, although mood did not modulate pronounceability effects in Experiments 1–2, where participants had only the ease of pronunciation to inform their judgements, the influence of pronounceability is expected to diminish (particularly so in negative compared to positive moods) when additional objective cues are introduced (see Figure 1, case b).

We tested this by assessing trustworthiness instead of liking as dependent measure (an instantiation of preference; see, e.g. Nicholson et al., 2001) and presenting objective trust-related information alongside our previous stimuli. Specifically, participants assessed the trustworthiness of eBay profiles, including the account holder's username (which was either an easy- or difficult-to-pronounce letter string) and a reputational star rating as an objective cue for the profile's trustworthiness (see Silva et al., 2017a).[5]

[4] Note, however, that the evidence for the main effect was only anecdotal in the Bayesian test.
[5] One might object that star ratings in internet contexts, produced by anonymous unreliable laypersons or even automated bots are no valid objective cue. However, please consult Silva

6.1 | Method

6.1.1 | Sample

As in the previous experiments, the data were collected online via an access panel. In total, $N = 200$ participants completed the experiment (Age: $M = 27$, $SD = 9$, 38.5% female, all fluent in German) and received £1.20 compensation (mean completion time 12 min). We applied the same data cleaning procedure as in the previous experiments. A total of $N = 33$ participants were excluded from the analysis (sad condition $N = 12$, happy condition $N = 21$). The final sample was $N = 167$ participants ($N = 82$ sad condition, $N = 85$ happy condition). Using G*Power (Faul et al., 2009), this sample allows us to detect a minimum effect size of $f = 0.11$ (corresponding to partial $\eta^2 = 0.01$) with 80% power ($\alpha = .05$, two-tailed, repeated measures, within-between interaction).

6.1.2 | Materials and procedure

Experiment 3 followed the same procedure as Experiment 2, but we presented objective trust-related information alongside our previous stimuli and employed trustworthiness instead of liking as dependent measure (an instantiation of preference; see, e.g. Nicholson et al., 2001). Prior to the rating task, we implemented the same video-based mood induction as in Experiments 1 and 2. To enrich the judgemental context of the experiment, we incorporated a template for an eBay seller profile from Silva et al. (2017a). Within this template, we presented the previously employed easy- and difficult-to-pronounce letter strings as seller names, while the reputation of these sellers, represented by star ratings (3.5 or 4 stars indicating a poor seller rating; and 4.5 or 5 stars indicating a favourable seller rating),[6] served as competitive cues. The seller names and star ratings were orthogonally sampled and re-randomised anew for each participant. The participants were instructed to rate how trustworthy they perceived each seller to be on a 10-point-Likert scale from 1 = *not trustworthy at all* to 10 = *very trustworthy*.

6.2 | Results

A 2 (Mood condition: happy vs. sad mood; between-subjects) × 2 (Pronounceability: easy vs. difficult; within-subjects) × 2 (Reputation: high vs. low reputation; within-subjects) ANOVA on the aggregated trustworthiness ratings found a main effect of pronounceability, $F(1, 165) = 15.93$, $p < .001$, partial $\eta^2 = 0.09$, $BF_{10} = 161.68$ and of reputation, $F(1, 165) = 758.15$, $p < .001$, partial $\eta^2 = 0.82$, $BF_{10} > 1000$. No main effect of mood, $F(1, 165) = 0.004$, $p = .95$, partial $\eta^2 = 0.00$, $BF_{10} = 0.29$ and no interactions between pronounceability and mood, $F(1, 165) = 0.07$, $p = .791$, partial $\eta^2 = 0.00$, $BF_{10} = 0.24$, reputation and mood, $F(1, 165) = 0.31$, $p = .580$, partial $\eta^2 = 0.00$, $BF_{10} = 0.58$, pronounceability and reputation, $F(1, 165) = 0.51$, $p = .477$, partial $\eta^2 = 0.00$, $BF_{10} = 0.16$ and pronounceability, reputation and mood, $F(1, 165) = 0.00$, $p = .952$, partial $\eta^2 = 0.00$, $BF_{10} = 0.25$, were found. Across both mood conditions, easy seller names ($M = 6.38$, $SE = 0.09$) were perceived as more trustworthy than difficult seller names ($M = 6.20$, $SE = 0.11$), $t(166) = 4.00$, $p < .001$, $d_z = 0.31$, but this pronounceability effect was not modulated by mood. The main effect of reputation was constituted by the fact that sellers with higher star ratings ($M = 7.68$, $SE = 0.13$) were rated to be more trustworthy than sellers with lower star ratings ($M = 4.91$, $SE = 0.10$), $t(166) = 27.59$, $p < .001$, $d_z = 2.13$.

6.3 | Discussion

Employing trustworthiness ratings of ostensible eBay profiles, pronounceability of seller names biased perceived trust even in the presence of objective trust-related information (the sellers' reputation). Although reputation itself had an independent strong main effect on the trustworthiness of the sellers (which replicates Silva et al., 2017a), mood did not modulate the respective impacts of pronounceability and objective trust cues at all. Thus, regarding case (b) in Figure 1, the competitive use of pronounceability as a superficial and reputation as an objective systematic judgemental cue was not moderated by mood. Also, mood itself did not enter the present trustworthiness ratings.

Given these findings, it is possible that emotional states simply do not modulate the degree to which pronounceability and more objective cues are used in judgement formation. However, it is also conceivable that our video-based mood induction was still too obvious to the participants. Similar to the PANAS assessment in Experiment 1, this may have attenuated the influence of mood on participants' evaluations due to re-attribution or correction processes. To eliminate these concerns, we adopted an alternative approach to induce affective states in the subsequent experiment.

7 | EXPERIMENT 4: GENERALISATION TO A SUBLIMINAL WITHIN-SUBJECTS AFFECT MANIPULATION

Previous research has shown that even brief affective states can effectively influence cognitive processes, comparable to the impact of longer-lasting mood states (for reviews, see Topolinski & Deutsch, 2012, 2013). Thus, as a further robustness check of our findings, we replicated the basic-set up of Experiment 3 while incorporating a subliminal priming procedure (see Topolinski & Strack, 2009b, Experiment 5) instead of the video-based mood induction. This subliminal affect induction, applied within-subjects, not only increased statistical power but also extended our findings to an affect induction participants were not consciously aware of.

et al. (2017a) for a discussion on the psychological validity of this reputational cue in consumer judgements.

[6] Please Silva et al. (2017a), for why a star rating of 3.5 or 4 stars is relatively poor in the present eBay context.

7.1 | Method

7.1.1 | Sample

A total of $N = 158$ individuals participated in the experiment via an online access panel (mean age $M = 27$, $SD = 9$, 50.6% female, all fluent in German). Participants received a compensation of £1.00 (mean completion time 7 min). We excluded trials in which the affective primes were not presented for the specified duration due to technical issues (≥16 ms and ≤35 ms). The sample allows us to detect a minimum effect size of $f = 0.11$ (corresponding to partial $\eta^2 = 0.01$) with 80% power ($\alpha = .05$, two-tailed, repeated measures, within factors; Faul et al., 2009).

7.1.2 | Materials and procedure

In Experiment 4, we used the identical trust-rating task as in Experiment 3 but employed a different mood induction procedure. Instead of inducing mood between-subjects through video clips at the beginning of the experiment, we induced a short-term PA or NA (within-subjects) prior to each rating trial in the main task. The set of priming stimuli included 20 happy and 20 sad faces from the Karolinska catalogue (Lundqvist et al., 1998). Each trial was preceded by a fixation cross that was presented on the screen for 1000 ms. Subsequently, a facial prime (happy or sad) was randomly sampled (re-randomised anew for each participant) and presented for 33 ms, followed immediately by a 300 ms display of a backward mask (visual noise). Then, an eBay seller profile was presented and participants were prompted to evaluate the trustworthiness of the given seller (see Experiment 3).

7.2 | Results

A 2 (Affective prime: happy vs. sad; within-subjects) × 2 (Pronounceability: easy vs. difficult; within-subjects) × 2 (Reputation: high vs. low reputation; within-subjects) ANOVA on the aggregated trustworthiness ratings found a main effect for pronounceability, $F(1, 157) = 14.72$, $p < .001$, partial $\eta^2 = 0.09$, $BF_{10} = 70.17$, a small main effect for affective priming, $F(1, 157) = 4.69$, $p = .032$, partial $\eta^2 = 0.03$, $BF_{10} = 1.14$, and a main effect for reputation, $F(1, 157) = 811.27$, $p < .001$, partial $\eta^2 = 0.84$, $BF_{10} > 1000$. The direction of all these clear, independent effects aligned with the findings from our previous experiments. No interactions between pronounceability and affective priming, $F(1, 157) = 0.16$, $p = .689$, partial $\eta^2 = 0.00$, $BF_{10} = 0.11$, pronounceability and reputation, $F(1, 157) = 0.59$, $p = .443$, partial $\eta^2 = 0.00$, $BF_{10} = 0.11$, reputation and affective priming, $F(1, 157) = 0.03$, $p = .864$, partial $\eta^2 = 0.00$, $BF_{10} = 0.11$, and pronounceability, reputation and affective priming, $F(1, 157) = 0.45$, $p = .502$, partial $\eta^2 = 0.00$, $BF_{10} = 0.18$s, were found. Again, sellers with easy names ($M = 6.52$, $SE = 0.10$) were rated to be more trustworthy than sellers with difficult names ($M = 6.37$, $SE = 0.11$), $t(157) = 3.84$, $p < .001$, $d_z = 0.31$, yet this pronounceability effect was not modulated by mood. The main effect of affective priming was constituted by the fact that happy primes ($M = 6.51$, $SE = 0.10$) generally led to higher trustworthiness ratings than sad primes ($M = 6.38$, $SE = 0.11$), $t(157) = 2.17$, $p = .032$, $d_z = 0.17$.

7.3 | Discussion

Replicating the previous findings, trustworthiness ratings for eBay sellers were influenced by the pronounceability of sellers' names, their reputation as an objective cue, and, in this instance, also by the briefly infused affect. As in Experiment 2, positive affective states of the participants led to more positive ratings overall (liking in Experiment 2, trustworthiness in Experiment 4). However, the effect of briefly infused affect was small (partial $\eta^2 = 0.03$), and the Bayesian analysis indicated weak evidence in favour of this effect ($BF_{10} = 1.14$). Thus, we interpret this main effect with caution. Crucially, the brief affective states did not modulate the impact of pronounceability on trust itself (Figure 1, case a), nor its interaction with competitive objective cues (Figure 1, case b). As we consistently observed no modulation of mood in both the direct and competitive use of the pronounceability cue, our next experiment explored whether mood would interact with the ability to correct for the influence of pronounceability.

8 | EXPERIMENT 5: JUDGEMENTAL CORRECTION

Silva et al. (2017a) have demonstrated that the feeling of pronunciation ease is even used as a judgemental cue when individuals are explicitly instructed to correct for its influence. However, according to cognitive tuning accounts, this (in)ability of judgemental correction might be modulated by mood, as negative mood fosters a more systematic and thorough processing. Accordingly, we tested whether mood would interact with the ability to correct for the effects of pronounceability (Figure 1, case c).

8.1 | Method

8.1.1 | Sample

As in the previous experiments, the data were collected online via an access panel. A total of $N = 204$ participants completed the experiment (Age: M = 27, $SD = 9$, 37.3% female, all fluent in German) and received £1.20 compensation (mean completion time 12 min). We applied the same data cleaning procedure as in the Experiments 1–3. A total of $N = 31$ participants were excluded from the analysis (sad condition $N = 19$, happy condition $N = 12$). A total of $N = 173$ participants remained in the final data set ($N = 94$ sad condition, $N = 79$ happy condition). Using G*Power (Faul et al., 2009), this sample allows us to detect a minimum effect size of $f = 0.11$ (corresponding to partial $\eta^2 = 0.01$) with

80% power ($\alpha = .05$, two-tailed, repeated measures, within-between interaction).

8.1.2 | Materials and procedure

Experiment 3 was replicated, with the only modification being that participants were informed about the easy- and difficult-to-pronounce seller names before the trustworthiness rating task. Following Silva et al.'s (2017a) procedure, they were informed that some of the seller names were easier to pronounce than others and they should discard this feature from their judgements.

8.2 | Results

A 2 (Mood condition: happy vs. sad mood; between-subjects) × 2 (Pronounceability: easy vs. difficult; within-subjects) × 2 (Reputation: high vs. low reputation; within-subjects) ANOVA on the aggregated trustworthiness ratings found main effects of pronounceability, $F(1, 171) = 61.43$, $p < .001$, partial $\eta^2 = 0.26$, $BF_{10} > 1000$, of reputation, $F(1, 171) = 462.72$, $p < .001$, partial $\eta^2 = 0.73$, $BF_{10} > 1000$, and also a small interaction between pronounceability and reputation, $F(1, 171) = 5.08$, $p = .025$, partial $\eta^2 = 0.03$, $BF_{10} = 0.96$. The main effect of mood was not significant, $F(1, 171) = 0.45$, $p = .501$, partial $\eta^2 = 0.00$, $BF_{10} = 0.48$. Also, the interactions between pronounceability and mood, $F(1, 171) = 0.24$, $p = .625$, partial $\eta^2 = 0.00$, $BF_{10} = 0.26$, reputation and mood, $F(1, 171) = 1.01$, $p = .315$, partial $\eta^2 = 0.01$, $BF_{10} = 0.56$, and pronounceability, reputation and mood, $F(1, 171) = 2.56$, $p = .112$, partial $\eta^2 = 0.01$, $BF_{10} = 0.56$, were not significant. In line with our previous findings, sellers with easy names ($M = 6.35$, $SE = 0.09$) were rated to be more trustworthy than sellers with difficult names across both mood conditions ($M = 5.83$, $SE = 0.13$), $t(172) = 7.842$, $p < .001$, $d_z = 0.60$. The interaction between pronounceability is less theoretically relevant here and suggests that the pronounceability effect was amplified if the seller had a good reputation.

8.3 | Discussion

The instruction to correct for the impact of pronounceability did not eliminate the pronounceability effect (as was already shown by Silva et al., 2017a). Rather, in the present experiment, the pronounceability effect ($d_z = 0.60$) was even larger than in Experiment 3 ($d_z = 0.31$), which employed an identical procedure except for the correction instruction. Further, we found that when evaluating the trustworthiness of sellers, the ease of pronouncing their names became even more important when they had a good reputation, which is in line with the findings of Silva et al. (2017a). One possible interpretation for this interaction is that when a seller is already seen as trustworthy due to a high reputation, any factor that makes them more likeable, such as having an easy-to-pronounce name, could further enhance their perceived trustworthiness. Moreover, sellers with easy-to-pronounce names may trigger higher familiarity, which, when combined with a high reputation, may be perceived as fitting a certain 'trustworthy seller' prototype. In contrast, difficult-to-pronounce seller names may be perceived as riskier (Song & Schwarz, 2009), which is generally an undesirable characteristic in online transactions.

As in Experiment 3, mood did not affect trustworthiness ratings and, crucially, mood did not modulate the ability for judgemental correction, unlike what has been observed for different instantiations of fluency (e.g. Bless et al., 1990; Bohner et al., 1992; Lambert et al., 1997; Ottati & Isbell et al., 1996; Storbeck & Clore, 2005). To further validate the consistent absence of mood-related effects, we subsequently explored whether mood would modulate participants' interpretation of pronunciation ease.

9 | EXPERIMENT 6: INFERENCES FROM PRONUNCIATION EASE

Although our previous experiments have consistently demonstrated how high pronunciation fluency leads to more positive evaluations, previous research has also shown that the feeling of ease can be flexibly interpreted according to the judgemental dimension given (Cho et al., 2015; Song & Schwarz, 2009). Thus, the final experiment (preregistered, https://aspredicted.org/aj2yt.pdf)[7] should explore how mood affects the cognitive interpretation of the feeling arising from pronunciation fluency (Figure 1, case d).

Given that we induced mood, our goal was to create a judgemental context in which the feeling of ease could dissociate into opposing interpretations of comparable valence, without provoking mood-matching effects. Building upon the digital interaction context from Experiments 3–5, we instructed participants to interpret letter strings either as names of eBay sellers or as passwords, and to rate how safe it would be to buy from that denoted seller or to use that given password. We predicted that easy- compared to difficult-to-pronounce letter strings would signify higher safety in the seller context, but lower safety in the password context. Note that the pronounceability of a password is technically not related to its security (e.g. Shen et al., 2016). To provoke flexibly switching inferences, we changed the judgemental context (seller name vs. password) randomly from trial to trial (within-subjects), similar to Vogel et al. (2020) alternating between truth/beauty judgements.

Applying cognitive tuning theory, inferences from experienced fluency should be pronounced under negative compared to positive mood, because negative mood fosters more systematic processing and thorough elaboration (e.g. Forgas et al., 2013; Schwarz et al., 2000; Schwarz et al., 1991a). Accordingly, the (reversed) pronounceability effects should be enhanced for both the seller name and the password context under negative compared to positive mood. This would result in a three-way interaction between mood, pronounceability and judgemental context.

[7] Our preregistration included the study design, sample size, exclusion criteria and planned analyses.

9.1 | Method

9.1.1 | Sample

A total of $N = 200$ participants completed the experiment (Age: $M = 34$, $SD = 12$; 92 female, 106 male, 2 diverse) on Prolific Academic. As none of the participants reported technical issues with the presentation of the video clips, no data cleaning procedure was applied. There was a comparable ratio of participants in the two experimental mood conditions (N = 98 sad condition, N = 102 happy condition). According to G*Power (Faul et al., 2009), this sample allows us to detect a minimum effect size of $f = 0.10$ (corresponding to partial $\eta^2 = 0.01$) with 80% power (α = .05, two-tailed, repeated measures, within-between interaction).

9.1.2 | Materials and procedure

We used the stimulus set from Topolinski et al. (2016) and selected the 64 longest letter strings (number of letters ranging from 8 to 11 letters) to make the denotation of being a seller name or password more plausible. This resulted in 32 easy (e.g. Fehstoctrab) and 32 difficult letter strings (e.g. Tohcbtsrcea). Note that the different versions of easy and difficult letter strings were anagrams of each other, entailing the same letters. Thus, pronounceability, not confounded with length or letter heterogeneity, was manipulated selectively. Before the task, we implemented the same mood induction as in Experiments 1–3 and 5; short video clips. In every trial of the rating task, a randomly sampled easy or difficult letter string was presented. Orthogonally to this manipulation, it was randomly sampled per trial whether participants were asked to rate how safe it would be to buy from such an eBay seller or how safe it would be to use such a password. A scale from 0 = *not safe at all* to 10 = *very safe* was applied.

9.2 | Results

A 2 (Mood condition: happy vs. sad mood; between-subjects) × 2 (Pronounceability: easy vs. difficult; within-subjects) × 2 (judgemental context: seller name vs. password; within-subjects) ANOVA on the aggregated safety ratings found a main effect of pronounceability, $F(1, 198) = 7.04$, $p = .009$, partial $\eta^2 = 0.03$, $BF_{10} = 0.89$, a main effect of judgemental context, $F(1, 198) = 4.74$, $p = .031$, partial $\eta^2 = 0.02$, $BF_{10} = 1.46$, and a very strong interaction between pronounceability and judgemental context, $F(1, 198) = 176.75$, $p < .001$, partial $\eta^2 = 0.47$, $BF_{10} > 1000$. None of the other effects were significant. That is, mood had no main effect, $F(1, 198) = 0.01$, $p = .920$, partial $\eta^2 = 0.00$, $BF_{10} = 0.26$. Neither did we find an interaction between mood and pronounceability, $F(1, 198) = 2.15$, $p = .144$, partial $\eta^2 = 0.01$, $BF_{10} = 0.40$, mood and judgemental context, $F(1, 198) = 0.32$, $p = .571$, partial $\eta^2 = 0.00$, $BF_{10} = 0.34$, nor the crucial omnibus triple-interaction between mood, pronounceability and judgemental context, $F(1, 198) = 0.33$, $p = .569$, partial $\eta^2 = 0.00$, $BF_{10} = 0.13$ (see Figure 2).

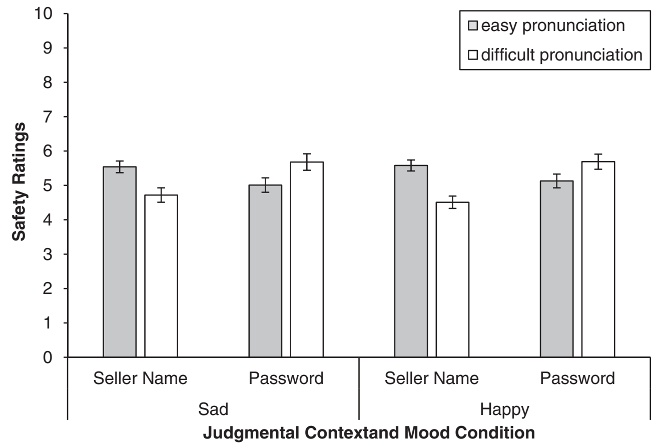

FIGURE 2 Safety ratings in Experiment 6. Perceived safety of buying from a seller or using a password with easy or difficult pronunciation in the sad and happy mood conditions. Error bars represent standard error of the mean.

The main effect of judgemental context was constituted by the fact that the password trials triggered generally higher safety ratings (M = 5.36, SE = 0.12) than the seller name trials (M = 5.08, $SE = 0.12$), $t(199) = 2.19$, $p = .03$, $d_z = 0.16$. The interaction between pronounceability and judgemental context, documenting the crucial flexible interpretation of fluency, was constituted by the pattern that for seller names, easy letter strings were rated as being safer ($M = 5.56$, $SE = 0.12$) than difficult letter strings, ($M = 4.61$, $SE = 0.14$), $t(199) = 9.69$, $p < .001$, $d_z = 0.69$. In contrast, for passwords, difficult letter strings were rated as being safer ($M = 5.68$, $SE = 0.16$) than easy letter strings ($M = 5.07$, $SE = 0.14$), $t(199) = 8.71$, $p < .001$, $d_z = 0.62$. For an overview of our findings regarding the pronounceability effect and the mood × pronounceability interaction across all experiments, please see Table 1.

9.3 | Discussion

Easy compared to difficult letter strings led to higher safety ratings when denoting a seller name, but to lower safety ratings when denoting a password. Thus, participants flexibly interpreted the experienced pronunciation fluency and drew contrary inferences. Note again that the pronounceability of a password is technically not related to its security (e.g. Shen et al., 2016). Thus, participants used an invalid heuristic in the present case. Crucial for the present investigation, mood did not modulate the interpretation of fluency.

10 | GENERAL DISCUSSION

The present research explored the impact of mood on the judgemental consequences of pronounceability (e.g. Song & Schwarz, 2009), as one instantiation of processing fluency (e.g. Alter & Oppenheimer, 2006). According to cognitive tuning theories (e.g. Bless & Fiedler, 2006;

TABLE 1 Effects of pronounceability and mood × pronounceability in Experiments 1–6.

		Pronounceability		Mood × Pronounceability	
Exp	N	p	Partial η^2	p	Partial η^2
1	160	<.001	0.57	.855	0.00
2	160	<.001	0.59	.689	0.00
3	167	<.001	0.09	.791	0.00
4	158	<.001	0.09	.689	0.00
5	173	<.001	0.26	.625	0.00
6	200	.009	0.03	.144	0.01

Note: Significance levels (*p*) and effect sizes (partial η^2) for the pronounceability effect and the mood × pronounceability interaction.

Schwarz et al., 2002), pronounceability effects should generally be more pronounced in positive moods than in negative moods. This is because pronunciation ease is a superficial, most often task-irrelevant feature that is used as an intuitive cue in judgements formation. Apart from this theoretical perspective, however, the experimental set-up of the pronounceability effect aligns with studies that have observed an attenuation of fluency effects in positive mood or no mood effect at all.

Accordingly, while pronounceability showed a robust effect across experiments, mood did not modulate the judgemental use of (Experiments 1–4), the correction for (Experiment 5) and the interpretation (Experiment 6) of pronunciation ease. This finding is in line with previous evidence on the mere exposure effect, where no influence of mood was observed (Molet et al., 2021; Schellenberg et al., 2008).

Our consistent null-finding is further corroborated by the fact that we implemented two different mood manipulations that were both found to be effective (see manipulation check using the PANAS in Experiment 1; see the main effect of mood in Experiment 2 and the anecdotal main effect of subliminal affective priming in Experiment 4). Against this background, our results cannot be explained by participants' re-attribution or correction of mood, as a mood × pronounceability interaction was also absent when affect was induced subliminally (Experiment 4).

10.1 | Implications for the pronounceability effect

Our findings suggest that pronunciation fluency generates a strong and immediate feeling of ease that pervasively biases liking, trustworthiness and safety judgements. Its significance, however, can only be re-interpreted according to the specific judgemental dimension in question (Cho et al., 2015; Song & Schwarz, 2009). Thus, easy compared to difficult letter strings led to higher safety ratings when denoting seller names, but to lower safety ratings when denoting passwords in Experiment 6.

Crucially, the present evidence implies that the cognitive mechanisms involved in pronounceability effects are extremely robust and resistant to cognitive tuning. Accordingly, the pronounceability effect generates considerable effects sizes between $d_z = 0.30$ and 1.20 (Silva et al., 2017a; Zürn & Topolinski, 2017; the present experiments), while persisting despite the presence of competitive information and even resisting judgemental correction.[8]

In a broader context, the present findings connect to most recent psycholinguistic research showing that another articulation-based effect, the so-called *in-out effect* (Ingendahl et al., 2022; Topolinski et al., 2014), is also unsusceptible to manipulations of inner states and cannot be corrected for (Ingendahl et al., 2021; Lindau & Topolinski, 2018; Maschmann et al., 2020).

10.2 | Implications regarding the determinants of trust and safety

In the present experiments, an influence of affective states was only sporadically observed. Specifically, we found a main effect of mood on liking in Experiment 2 and a small main effect of subliminally primed affect on trustworthiness in Experiment 4 (however, the evidence for the priming effect was weak, $BF_{10} = 1.14$). Consequently, a feeling-as-information pathway (e.g. Schwarz et al., 2021) appears to play a negligible role in our experiments. In terms of its function as tuner of cognitive processes leading to trust, mood did not play a role at all in the present evidence; whether in the competitive use of different cues (Experiments 2–4), the correction for (Experiment 5), or the flexible interpretation of pronunciation ease (Experiment 6). A limitation of these findings is that the present experiments involved impoverished judgemental contexts, and the enriched contexts in Experiments 3–6 were only implied by verbal framing of the stimuli. Nevertheless, our findings suggest to hold the notion of a pervasive impact of mood on trust rather cautious, while pronunciation fluency presents itself as a strong and generalisable determinant of trust and safety perceptions (see previous section).

Against this background, a potential relationship between mood and trust appears intricate and may depend on various contextual factors and the nature of the cues presented. In line with this, although some studies have indicated that positive mood can indeed increase trust and safety assessments (e.g. Mislin et al., 2015), others have revealed

[8] However, as a limitation of both the present and Silva et al.'s (2017a) work, it must be noted that participants were not explicitly informed about the direction of the pronounceability effect (easy is positive). Thus, it is possible (although unlikely) that participants might have been uncertain in which direction to correct their judgements.

more nuanced associations. For instance, Dong et al. (2014) found that positive faces were trusted more than negative faces, but that induced mood had no additional or interactional impact. Similarly, Wyland & Forgas (2010) did not find an impact of mood on rated trustworthiness cued by eye gaze.

10.3 | Implications for the mood–fluency link

Regarding the relationship between mood and fluency, the present evidence, essentially providing a carefully documented series of null findings (see the Bayes analyses), reflects the heterogeneity of fluency effects described in the literature. Some studies, assessing abstract judgements of verbal material, have unveiled stronger fluency effects in positive compared to negative mood (Baumann & Kuhl, 2002; Koch & Forgas, 2012; Ruder & Bless, 2003; Topolinski & Strack, 2009b). Other studies, assessing liking ratings of non-verbal material, found weaker fluency effects in positive compared to negative mood (de Vries et al., 2010; Freitas et al., 2005), or no mood modulation at all (Molet et al., 2021; Schellenberg et al., 2008). The present evidence contributes to this complex landscape of findings by demonstrating that pronounceability effects, involving liking (or liking-related) ratings of seemingly verbal but non-semantic stimuli, are not moderated by mood.[9]

Crucially, the variability of these findings strongly indicates that different sources of fluency, such as semantic, conceptual, or articulation fluency, entertain differing dynamics with affect. This implies that the experience of fluency does not arise from a singular mechanism but rather encompasses various distinct cognitive processes under the umbrella term of 'fluency'. Thus, the judgemental consequences of pronunciation fluency, much like those of the mere exposure effect, might be based on a fundamental perceptual mechanism that spontaneously encodes patterns of information (for a similar perspective within the broader context of implicit processes, see Evans et al., 2008). In contrast, fluency arising from abstract judgements of verbal material, such as the semantic coherence of word triples (e.g. Baumann & Kuhl, 2002; Topolinski & Strack, 2009b), likely involves higher order cognitive processes and previously acquired knowledge systems.

For future research, a potential next step could be to systematically manipulate the fluency of verbal and non-verbal aspects within the same stimulus material. Additionally, the dependent measure could be varied between direct liking judgements of the stimuli themselves or abstract judgements about the relationship of the stimuli.

11 | CONCLUSION

In the present paper, we explored the impact of mood and brief affective states on the judgemental consequences of word pronounceability. Although pronounceability reliably and strongly biased perceived liking, trust and safety, mood and subliminally primed affect did not modulate this pronounceability effect. Accordingly, the use of pronounceability in judgement formation appears to be impenetrable by affective states, persists despite the presence of more diagnostic cues and resists judgemental correction. These findings suggest that the mechanisms involved in pronounceability effects are remarkably robust. However, given the mixed evidence regarding the mood–fluency link, different sources of fluency may exert different dynamics in the interplay between emotion and cognition.

[9] Nevertheless, it is important to acknowledge that previous studies also differed in terms of other critical features, such as global judgemental context or cognitive demands of the tasks.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

DATA AVAILABILITY STATEMENT

All data, analysis scripts and materials are openly available at https://doi.org/10.17605/OSF.IO/QRAKF

ETHICS STATEMENT

Informed written consent was obtained from participants prior to participation.

TRANSPARENCY STATEMENT

All data, analysis scripts and materials have been made publicly available at the Open Science Framework (OSF) and can be assessed at https://doi.org/10.17605/OSF.IO/QRAKF

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